Arsenii Ashukha

PhD Candidate at Bayesian Methods Research Group Student Researcher Samsung Al Center Moscow Home page Google Scholar

EDUCATION

- PhD in Computer Science, National Research University Higher School of Economics, 2017 2021
 Topic: Applications and understanding of variational inference for modern deep learning, Advisor: Dmitry Vetrov
- MSc in Computer Science, Moscow Institute of Physics and Technology, 2017 (with distinction)
 Thesis: Sparsification of DNNs probabilistic framework, Advisors: Dmitry Vetrov and Alexey Dral
- BSc in Computer Science, Bauman Moscow State Technical University, 2015
 Thesis: Bigram anchor words topic modeling, Advisor: Natalia Loukachevitch

PROFESSIONAL EXPERIENCE

- Research scientist at Samsung Al Center Moscow (2018 Now):
 Research on probabilistic deep learning, ensembles of DNNs, uncertainty estimation.
- Research scientist at Yandex Research & University of Amsterdam (2017 2018):
 Research on Bayesian deep learning for a group-level sparsification and uncertainty estimation.
- Research Intern at Lab of Deep Learning and Bayesian Methods HSE (2016 2017):
 Research on Bayesian deep learning for sparsification and incremental learning.

My responsibility included: selecting research directions, scheduling and executing research agenda, development of machine learning models and algorithms, writing papers.

Before I dive into research, I worked as a machine learning engineer at Rambler and Yandex, where I worked on a variety of industrial problems that required creating machine learning models and processing a massive amount of data. Such problems include recommendation systems, advertising systems, and music processing.

PUBLICATIONS

- Arsenii Ashukha*, Alexander Lyzhov*, Dmitry Molchanov*, Dmitry Vetrov
 Pitfalls of In-Domain Uncertainty Estimation and Ensembling in Deep Learning, ICLR (2020).
- Kirill Neklyudov*, Dmitry Molchanov*, Arsenii Ashukha*, Dmitry Vetrov
 Variance Networks: When Expectation Does Not Meet Your Expectations, ICLR (2019).
- Andrei Atanov*, Arsenii Ashukha*, Kirill Struminsky, Dmitry Vetrov, Max Welling The Deep Weight Prior, ICLR (2019).
- Andrei Atanov, Arsenii Ashukha, Dmitry Molchanov, Kirill Neklyudov, Dmitry Vetrov,
 Uncertainty Estimation via Stochastic Batch Normalization, Workshop Track ICLR (2018).
- Kirill Neklyudov, Dmitry Molchanov, Arsenii Ashukha, Dmitry Vetrov
 Structured Bayesian Pruning via Log-Normal Multiplicative Noise, NeurlPS (2017).
- Dmitry Molchanov*, Arsenii Ashukha*, Dmitry Vetrov
 Variational Dropout Sparsifies Deep Neural Networks ICML (2017).

Full list: scholar.google.com/citations?user=IU-kuP8AAAAJ. *equal contribution.

MISCELLANEOUS

Reviewing:

- Conferences:
 - International Conference on Machine Learning, ICML (2019, 2020)
 - Neural Information Processing Systems, NeurIPS 2019 (top-50% highest-scoring reviewers)
 - International Conference on Learning Representations, ICLR 2020
- Workshops:
 - ICML Workshop on Invertible Neural Networks (2019, invertibleworkshop.github.io)
 - Bayesian Deep Learning Workshop (since 2017, bayesiandeeplearning.org)

• Thesis (co-)supervision:

- Alexander Lyzhov
 - Deep Neural Network Ensembles: Analysis and Approaches to Diversification (MSc, 2020)
- o Andrei Atanov
 - Effective Learning of Deep Neural Networks Ensembles (BSc, 2018)
 - Learning Deep Models with Small Data (MSc, 2020)
- Evgenii Nikishin (MSc, 2019)
 - Stability Improvement and Knowledge Transfer in Deep Reinforcement Learning (MSc, 2019)

Teaching:

- Supervisor of scientific seminars on machine learning at HSE and Yandex (since 2017)
- o TA at Deep|Bayes Summer School on Bayesian Deep Learning (since 2017), http://deepbayes.ru
- Machine Learning at MIPT: TA (2016), Lecturer and manager (2017, 2018)

• Open-source contributions:

- See https://github.com/senya-ashukha.
- Extremely simple implementations of ML algorithms that I made just for fun:
 - Gradient boosting, https://github.com/senya-ashukha/simple-boosting
 - Density estimation using Real NVP, https://github.com/senya-ashukha/real-nvp-pytorch
 - Quantile Regression DQN, https://github.com/senya-ashukha/quantile-regression-dqn-pytorch
- Languages and Keywords: I'm fluent with Python which is my love, I use to code on C, Go, language is not a problem after all. I'm also fluent with common libs such as NumPy, Matplotlib, scikit-learn, etc. My primary deep learning framework at the moment is PyTorch which is my absolute love, prior to that I had a decent experience with Theano+Lagange and TensorFlow.
- Foundations are crucial: During my MSc degree, I learned many fundamentals of machine learning and algorithms at Yandex School of Data Analysis (YSDA) e.g., Machine Learning, Bayesian Machine Learning, Optimization in Machine Learning, Deep Learning, and Graphical Models.